

John B. Taylor

In 1992, Stanford University economist John Taylor developed a simple equation that, using grade school math and only three variables, told the Federal Reserve what to do:

$$r = p + .5y + .5(p - 2) + 2$$

where r is the federal funds rate
 p is the rate of inflation over the previous four quarters
 y is the percentage deviation of real GDP from a target.

The “ r ,” of course, is what the Federal Open Market Committee deliberates at every meeting, and Taylor’s formula not only described past Fed policy moves with startling precision, but also provided a systematic method for making future “ r ” decisions.

Ever since, scholars have been tweaking coefficients, modifying variables and debating its function, but Taylor’s rule has remained the gold standard, so to speak—open to doubt and subject to discretion, but impossible to dismiss. “A simple equation that has proved remarkably useful as a rule-of-thumb description of monetary policy,” wrote now-Fed Chairman Ben Bernanke in 2004. Or as Taylor observes in the following *Region* interview, “Staying close to the rule works pretty well.”

Taylor’s experience and influence extend well beyond one powerful equation. Along with seminal monetary research—his colleagues have also identified a “Taylor curve” and a “Taylor principle”—he has published pioneering work on rational expectations, wage and price dynamics, international monetary and fiscal policy, econometrics and even the death penalty.

He’s also worked in several presidential administrations, as economic adviser to Gerald Ford and George H.W. Bush, and most recently as under secretary for international affairs in the U.S. Treasury from 2001 to 2005, where responsibilities ranged from currency policy to economic reconstruction in Afghanistan.

Taylor enjoys the classroom, as well, developing innovative teaching techniques that are models for Stanford curricula, and he knows how to curb daydreaming. In years past, he wore a raisin costume to his intro economics course and danced to “I Heard It Through the Grapevine”—teaching an indelible lesson about agricultural supply and demand.

For Taylor, time in one sphere spurs productivity in others: Research finds light in college lectures; work in government stimulates research. Indeed, he developed the Taylor rule soon after returning to Stanford from the Council of Economic Advisers, where he liaised with the Fed. Back again from a Washington stint, he’s now at work on a book about implementation of economic policy. “Economic research,” Taylor has written, “is most exciting and productive when it is policy-driven.”

THE TAYLOR RULE

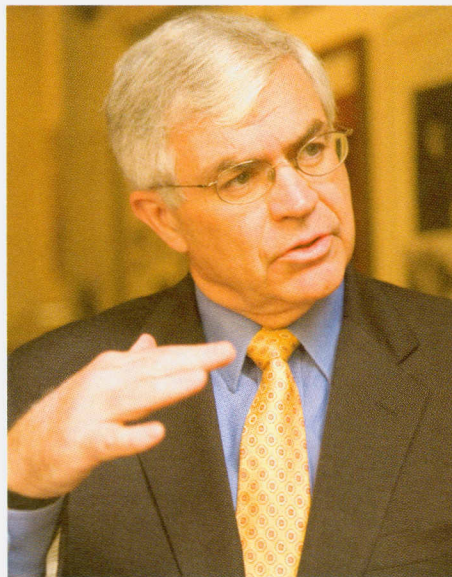
Region: The Taylor rule has had a tremendous impact on the Fed, and on monetary economics more broadly, in its ability to track the federal funds rate—some would say predict it. In your original article, you said that monetary policy rules “cannot and should not be mechanically followed by policymakers.” But that prompts the question, How, or to what extent, should they be implemented? That is, are they prescriptive as well as being uncannily descriptive?

Taylor: Well, yes, certainly I had the idea they would be prescriptive or normative, and a guide to policy—very much so. That was the whole reason I proposed the policy rule I did back 1992. In the 14 years since then, it has turned out to be descriptive of what’s actually happened, both at the Fed and at other central banks.

A great deal of research, beginning in the late ’70s into the ’80s, emphasized the importance of a more rule-like, more systematic behavior for monetary policy. One reason was accountability: It would provide a way to determine whether it was a good or a bad policy. All of the research on rational expectations had shown that you really couldn’t evaluate monetary policy without thinking of it as a rule. Another reason was provided by the time inconsistency work, which stressed the importance of sticking to a rule, not changing things afterwards.

So there were many reasons to try to think more about monetary policy being rule-like. And that was my motivation. I’ve always had interest in policy rules as a way of thinking about monetary policy. Actually, my senior thesis in college was on policy rules, so it goes way back for me. But my work in 1992 was an attempt to be more practical—I’ll put it that way. Despite all this research about systematic monetary policy, people were still talking about the Fed as “nothing but discretion” and “there’s no rhyme or reason for what they’re doing.”

That didn’t seem to me to be right. It didn’t seem to be the logical way to pro-



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ceed, based on the research that had been done. So I came up with this simple formula. I did emphasize that it was not to be used mechanically because it couldn’t be. For example, the rule was based on quarterly information, but incorporating what happens each month, each week, to inflation and the real economy requires judgment. But a rule would still be useful as a guideline. What I think has surprised many people is how accurate it has been as a guideline because we didn’t know that at the time.

We also found that it applied internationally. I didn’t think of other countries in my initial work, but it has turned out to be very helpful for other central banks around the world.

But returning to your question, yes, I did think of this as a normative concept. Definitely.

INFLATION TARGETING

Region: How is implementing a Taylor rule different from monetary policy through inflation targeting?

Taylor: The Taylor rule, of course, had an inflation target in it. And that goes back in my research from many years before. In order to formulate a good monetary policy, you had to stipulate what the goal of the central bank was in terms of inflation. So stipulating a number, that goes back long before the Taylor rule. My first published papers on policy rules (for example, my 1979 *Econometrica* paper) had a target for inflation. I labeled it π^* . And you couldn’t think about policy otherwise. That was the implication of all these models, that that’s the main function of the central bank. So you had to have a π^* . I chose 2 percent for the Taylor rule to make it simple, so it’s embedded in the policy rule.

The policy rule also went further than having an inflation target; it said what should happen to the instruments of policy—in this case, the federal funds rate. Previous to this work, it would be money growth. So I never thought of this as an alternative to having a target for the inflation rate.

I should add, by the way, that I’ve always felt that in practice one needn’t have a specific numerical target. If you were credible in stating the goal of price stability, or maintaining the purchasing power of the dollar, you could do well without a specific number. And I think the Fed has shown that through many years. Not to say it wouldn’t be helpful, but it seemed to me it wasn’t necessary. Even though the formula I developed set 2 percent as the goal, I think that having it a little less precise has worked well for the Fed. Not to say it should always work that way.

Region: In a recent review of inflation targeting regimes internationally, you compared countries that have formally implemented inflation targeting with those that operate with more discretion.

You found, I believe, that there's not a great deal of difference as long as the country focuses on price stability. Is that right?

Taylor: What I observed, both by looking at the econometrics and by participating in lots of discussions internationally with central bankers, is that policy actions are very similar at central banks that are classified as following formal inflation targeting regimes and at those, such as the Fed, that are following other approaches to achieving price stability. The key factor is whether the central bank is committed to price stability and systematically takes actions to achieve that goal, not whether it follows one particular inflation targeting framework or another. When I was in the U.S. Treasury, I chaired a committee (at the Organization for Economic Cooperation and Development) of the deputy governors of central banks and other top international finance people, and I observed that if I asked them what should be the best response to a certain event—such as a rise in inflation or a slump in the economy—their descriptions of what policy should be were very similar. The central bankers from the Fed and the European Central Bank gave the same answers as the central bankers from the Bank of England and the Swedish Riksbank, even though the latter two are considered formal inflation targeters and the former two are not. All gave very similar descriptions. And if you look at them econometrically, it's the same. There's very little difference in practice in how they respond.

Region: Does that imply the debate over the wisdom of inflation targeting is moot?

Taylor: Inflation targeting has been very useful as a way to spread the principles of good monetary policy, starting with the Chileans and New Zealanders in the early 1990s and going on to other countries. So I think it has been very helpful in spreading the good word, if you like, about pol-

icy. But I also feel that you can't just stop with that principle of inflation targeting. You have to add information on: How do you get to the target? How should the instruments respond?

I sometimes give the analogy of sailing. You want to get to a particular destination with the sailboat; that's like the inflation target: where you're going. But if, as a monetary expert or adviser, you provided no more information, you just left it there, the captain and the crew (the central bankers) wouldn't know what to do. So describing how the sails should be trimmed and the optimal way to do your tacks, et cetera, is like providing a description of the instruments of the policy rule. So I wouldn't say it's a moot issue, but there are other issues that are very important too.

Region: And discretion is involved when a gust of wind comes up or a wave hits broadside?

Taylor: Yes. I don't think that you can do monetary policy without exercising judgment. If there's some event that you haven't seen before that's irregular, it requires judgment—that may be like a gust of wind. But the danger I see is that policymakers might begin to think about policy as just a bunch of irregular gusts of wind and think about each gust as it hits with little advance or systematic preparation of what to do when a gust hits. There is some real value to having a systematic rule-like procedure to follow and that handles a lot of things.

But it's very easy when people look at monetary policy to look only at the gusts, if you like, and not recognize that there's so much else going on in the operation of a good monetary policy. It's important to be predictable and systematic. I always like to stress the "rule" rather than the "discretion" part of monetary policy, and I think that's what the Taylor rule does stress. There's a lot going on that's systematic in the policy rule—certain principles of monetary policy, if you like. The markets have recognized this. It's worked in different

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countries. And countries that don't follow those principles get screwed up. In the past—especially from the late 1960s through the 1970s—when the United States didn't follow those principles, we screwed up badly. So those principles, it seems to me, are very, very important and will continue to be important.

So, yes, discretion is needed, but one of the things that I've observed over the nearly 15 years since I first presented the Taylor rule to my academic and central banking colleagues—and I think to some extent it's because the rule has been so descriptive—is that you may not need much deviation from the rule. Staying close to the rule works pretty well.

OUTPUT GAPS

Region: The rule relies in part on an output gap [between potential and actual gross domestic product]. Some economists—including not a few at the Minneapolis Fed—would say that output gaps have little predictive power when it comes to inflation, contending that the Phillips curve relationship has long been discredited. How do you respond to that argument?

Taylor: I've always worried about estimating gaps. They're very hard to estimate. There's a lot of uncertainty; you don't know what productivity growth is. And there's always debate about how strong it will be in the future. This uncertainty in measuring the output gap is one reservation I have about its playing too big a role in a policy rule.

But it *does* forecast inflation in the following sense. Historically, when you go into a recession, there's less pressure on prices. With less inflationary pres-

sure, reducing the interest rate is useful. Plus, in boom times when you're well beyond capacity, you create inflationary forces. That's historically the case. It's not a long-run relationship. There is no long-run Phillips curve; there's no doubt about that in my mind. But there is this short-run tendency that makes, I would say, preemptive moves to combat inflation possible and useful.

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I think preemption is important for monetary policy, being able to move on the basis of an expectation of inflation. And so often a big factor in projecting whether inflation is going to rise or fall has to do with the state of the economy. So it's a factor, but it's not the only factor.

There's an additional reason you want to be reacting to the real economy, a basic principle of monetary policy. Even if you had a fixed growth rate of the money supply—the Friedman rule—a slowdown in real GDP growth would reduce the demand for real money balances and automatically reduce the interest rate. If you have a monetary policy focusing on interest rates (not money growth) you really want to have that. It's like an automatic stabilizer. That implied interest rate reaction was a very important rationale for the Friedman rule. So I think that's important to still have in monetary policy. Including real GDP in the policy rule gives you that reaction.

And it's going to happen anyway, so you'd better be clear and systematic about the size of the reaction up front. When the U.S. economy goes into a recession—at the beginning of 2001, for instance—the

notion of keeping interest rates at 6 percent through that whole period would just not have been practical. And it would not have been good policy. So I think it's important to have that reaction in there, but I'd be the first to say that we don't have a good estimate of potential GDP in the gap, and that makes it difficult.

EXCHANGE RATES AND MONETARY RULES

Region: Exchange rates generally have been given little weight when developing monetary policy rules for large economies. Is there an argument for incorporating them into models for small open economies?

Taylor: Well, first the original version of the Taylor rule—I did not call it the Taylor rule then, of course; others gave it that name—purposely did not include exchange rates, even though the model that I simulated to derive the best rule was an open economy model. I used a multicountry, rational expectations model estimated to data of seven countries. In principle, the optimal policy rule could have had the exchange rate in it, but the simulations showed that it was not useful. Almost always, in fact, it made things worse because the interest rate would change a lot in response to fluctuations in the exchange rate and tend to disrupt the domestic economy. So that's why the exchange rate was not in my original piece on the policy rule. However, the model I looked at was really for large open economies like the G7.

For the smaller open economies, it's more of a question. But again, most people who've looked at the results of models with flexible exchange rates have found that there's not much of a reaction to the exchange rate in the optimal policy. There is a little bit of one. However, in the *estimated* Taylor rules of emerging market countries, a depreciation tends to result in an increase in the interest rate. Conversely, when there's a currency appreciation, there tends to be a cut in the interest rate. That's an empirical regularity.

No one knows why that's happening. If you talk to the central bankers in those countries, they frequently are not thinking of it as an automatic response.

There are two possible reasons it occurs. One is they're just trying to stabilize fluctuations in the exchange rate. The other is that it's part of inflation targeting, because when the exchange rate depreciates, there's frequently a forecast of higher inflation, which would call for a higher interest rate, according to a Taylor rule type of policy. So I think it's an issue that still needs to be researched, but I'm surprised really that even in smaller economies, the policy rule works fine without an explicit focus on the exchange rate.

CHINA

Region: Speaking of exchange rates, as under secretary, your portfolio included the United States' economic relationship to China and U.S. concerns about the peg of the yuan to the dollar. The Chinese government has loosened its peg somewhat—perhaps as a response to financial diplomacy. What's your sense of how much further China will move and how quickly?

Taylor: China's exchange rate will continue to move. The move in July 2005 was a first step, and they've continued to move since then gradually. From talking to them over the years, it's clear to me that's where they wanted to go: to more flexibility. So I think there's no question the exchange rate will be more flexible over time.

To answer your question of how quickly, I don't know. To some extent, it depends on how rapidly the markets in China develop to handle a flexible exchange rate. The problem of exiting from a rate that's been fixed for so many years to a flexible rate is that there are really no markets around for price discovery to determine what the rate is, or to hedge against risks.

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rate. So it's like a chicken-and-the-egg. Now there's some flexibility; the market's starting to develop. As it develops more, they can have more flexibility, and the market will develop more. That's really what's happening.

Personally, I think they've handled this pretty well. It hasn't caused a lot of market turbulence. It's a smooth exit from a policy that many countries have had trouble exiting from. I also think the approach of the G7—the United States and Europe, Japan, and Canada—in bringing this about, as you say, through financial diplomacy, has worked well and deserves some credit.

It was not an effort to bash China. A more flexible exchange rate is important for the world economy, of course, but we were always emphasizing that this change was in China's interest because it would allow them to have a monetary policy that could focus on inflation as

their economy became more sophisticated financially. It's a gradual change because that's the way to prevent turbulence and make things work smoothly.

Region: There's also been movement toward reform of the banking system in China. Are you concerned about the stability of China's banking system in light of their opening up to international competition and given their efforts to reform it by reducing bad loans and inefficient management?

Taylor: I think that opening it up to the international economy in their deliberative way is very, very beneficial to China. There's improved technology, lots of things that foreign banks can bring into China that will help them modernize the banking sector. Competition, too, should be very helpful in financial services, just like any other sector.

But the nonperforming loan problem is something that they still have to deal with, and it's not going away very fast. I don't think the flexible exchange rate interferes with that. I think they've got to do both to have a modern financial system.

THE INTERNATIONAL MONETARY FUND

Region: A few weeks ago, Mervyn King [governor of the Bank of England] gave a speech in India in which he called for a rather radical overhaul of the IMF, saying that if such an overhaul didn't take place, the IMF would "slip into obscurity." Working with the IMF and pushing for reform was, again, part of your brief as under secretary. Do you agree with King's assessment? What changes need to be made?

Taylor: Unfortunately, I haven't seen his piece, but I worked with him a lot on the reforms that we put through. It's important first, before you think about reforms going forward, to note what's happened recently at the IMF. And I think there have been some good reforms.

Actually, these recent reforms have

analogies with monetary policy rules. In a book I'm writing right now, I have a chapter called "New Rules for the IMF." The idea is that one of the problems with the IMF was that there was too little systematic behavior. Will they bail out a country or won't they? When will they? Which country? On what does it depend?

The lack of systematic behavior has led to lots of uncertainty in the markets. I think it was one of the reasons we had so much contagion in the '90s. When the crisis in Russia hit, nobody knew what the reaction of the IMF would be, but it turned out to be a surprise change from earlier policies used in other parts of the world, and this was one of the reasons that the crisis spread. One of the more important recent reforms has been to put some more rules on the IMF. Now there are limits that they have to adhere to in providing large-scale assistance to countries that are near crisis.

Bringing about this reform actually took a lot of work. These are international institutions with many players. And there had to be parallel reform of the sovereign debt markets, making the bonds much different than they were in the past. They now have particular clauses called "collective action clauses" that describe what happens if a country is near debt default. That's added much more predictability to the way bond markets work and has enabled the IMF to be more rule-like or systematic.

So I think that's a very important reform. In fact, I think it's one of the reasons we haven't had any emerging market crises now for quite a while. It's really an amazing thing. Also, yield spreads

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are down on emerging markets' government bonds [suggesting that perceived risk is lower] and capital flows are up to emerging markets. And I think that's one of the reasons people are saying, "What's the IMF doing? Are they going into obscurity?" Well, they don't have to do much now because, fortunately, these crises have diminished. As a result, we are moving into a period where people are wondering what the IMF is for.

Mervyn's proposals, as I recall them from when we worked together, are related to the structure of the institutions; for example, they don't need an executive board in Washington. Those kinds of suggestions may be useful, but I think the changes that have occurred already are very important. What I would stress is, let's make sure that we don't move away from these new rules and have a way to maintain them.

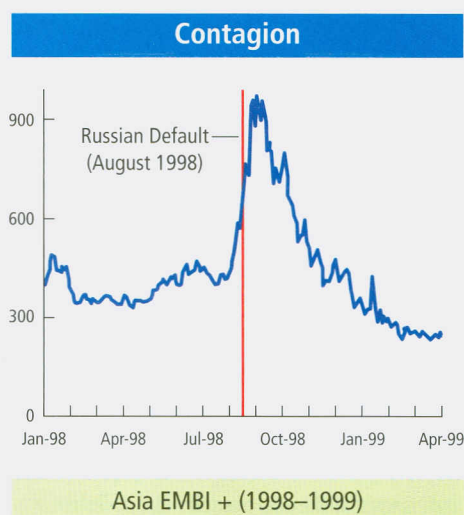
Region: The IMF bailout of Argentina occurred before these rules were in place?

Taylor: Right. These new rules really began to be developed in 2001 or 2002. It took about a year to implement them. So they actually were not put in place until February 2003; since then, there have been no new large-scale rescues of any kind. And I think the nature of the markets has changed, in part, as a result of the new rules.

CONTAGION

Region: How concerned are you about the international spread of financial crises? Are there sufficient safeguards now, at the IMF and elsewhere, to guard against financial contagion?

Taylor: We have a lot less contagion now than we had in the 1990s. I drew up some simple charts to illustrate how interest rates rose all around the world after the Russian default but didn't after the Argentina default. The red line is the default in Russia in 1998, and these are the interest rates in Asian, African and



EMBI + is J.P. Morgan's Emerging Markets Bond Index (Plus), an unmanaged index that tracks the total returns for external-currency-denominated debt instruments of emerging markets.

Latin American emerging markets [charts reproduced above only for Asia]. They skyrocketed at the time of the Russian default. And that caused a lot of damage.

But look at what happened after Argentina defaulted in 2001, and you see there's no similar jump in spreads anywhere around the world. So it's a huge difference.

The question is whether it is a lasting phenomenon. I've thought a lot about it and written about it. And I think it is a lasting difference. One reason is the more predictable response of the IMF. Second, country policies are better—Brazil, for instance, has a better monetary policy. They *are* targeting inflation. Turkey has better monetary and fiscal policy. So the policies in a lot of countries are better, and that's the surest way to stop the contagion. And then finally, I think investors are discriminating more

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between countries. They don't automatically think there's a problem in one country when they see another having a problem.

If these conditions continue, then that's the best safeguard against crises I could possibly imagine. But still, events will occur, and that's why you can't say there's no possibility of contagion in the future. So you have to be vigilant.

STICKY WAGES

Region: Let me turn to a different macroeconomic question. You recently wrote that wage determination should be put on the "front research burner." Why is this so important?

Taylor: In my view, the two essential characteristics of modern macroeconomic models, especially those that are used for monetary policy evaluation, are rational expectations and sticky, or staggered, wage and price determination. This class of models was first developed in the 1970s. The staggered wage and price setting was developed as a means of incorporating more realism into the innovative rational expectations models of Robert Lucas in a way that made theoretical and empirical sense. And the models have been improved on ever since, including through such research as

the 1999 *Econometrica* paper by Chari, Kehoe and McGrattan. This new class of models was the workhorse for the stochastic simulations that I and others, such as Ben McCallum, used in the 1980s and 1990s to determine optimal policy rules, and they are the basis for modern treatises such as Michael Woodford's recent book *Interest and Prices*.

In the last three or four years, there's been a great deal of effort devoted to getting good empirical information needed to test the staggered price setting models—scanner data from stores, details of a price survey that the Bureau of Labor Statistics does, et cetera. My colleague here at Stanford, Pete Klenow, has done a lot of that research [see <http://www.minneapolisfed.org/pubs/region/0309/clement.cfm>]. So they're looking at details in the data and learning more about price formation, about sticky prices. "How long does a given price last? Are the staggered price setting models accurate when you look at the data?" These are some of the questions that you can answer with these data.

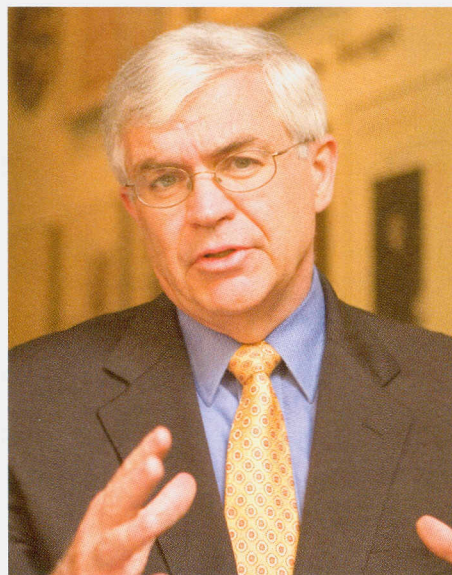
But in comparison to this expansion of empirical research on prices, there's really nothing comparable on wages, and I think, relatively speaking, that there's a research gap there, and that is why I suggested putting it on the front burner. Wage formation is part of the inflation process, and understanding more about that would be useful.

There's still much interest in wage determination, but very little of it is empirical—certainly nothing on the magnitude of the work on the consumer price index by Pete and others.

ASSET PRICES AND ECONOMIC EXPANSION

Region: In the late 1990s, you gave presentations about the "Long Boom." What was the Long Boom, and did it, in any sense reflect an asset price bubble? And do you believe that monetary policy has any role vis-à-vis asset price bubbles?

Taylor: As for the "Long Boom," I think I first defined it in the April 1998 Homer Jones lecture that I gave at the St. Louis Fed called "Monetary Policy and the Long Boom." In that lecture, the empirical phenomenon that I focused on was that the size of fluctuations in the economy has diminished substantially. If you looked back to 1982 from at that time—1997 was the last completed year—you saw what looked like a long boom. You had just one historically very small and short recession—in 1991. So the 15 years from 1982 to 1997 were like a long boom. I asked the question, What was the long boom due to? And I gave the answer that it was monetary policy. I documented how monetary policy had changed since the bad old days of frequent recessions. As long as monetary policy stayed on track, I argued, the long boom would continue.



I don't think it's appropriate for monetary policy to try to burst bubbles or prick bubbles because we know too little about them. ... [I]t is best to focus on how asset prices affect the real economy and inflation, and react to that, but not directly to the bubbles themselves.

And the long boom has continued. We had another recession that was relatively mild despite all the hits the economy took in 2001, but now we're more than four years into another expansion. When I gave the Homer Jones lecture, the 1980s expansion was the longest peacetime expansion in American history. Soon after I gave the lecture, the 1990s became the longest expansion. And now maybe we're in one that will be even longer, but that will depend on keeping with the good policies. So this phenomenon of long, strong expansions and short, small recessions was how I defined the long boom. The same phenomenon is now called the Great Moderation, and there is continuing debate about its causes. I continue to point to the role of monetary policy in making the Long Boom, or the Great Moderation, happen. I think there really is something to that.

As for bubbles, I don't think it's appropriate for monetary policy to try to burst bubbles or prick bubbles because we know too little about them. The history of Japan or our country in the Great Depression suggests problems when you try to do that. I think it is best to focus on how asset prices affect the real economy and inflation, and react to that, but not directly to the bubbles themselves. In terms of the asset bubble in the late '90s in the United States, I don't think there should have been an effort to burst that specifically at the time.

In 1998, however, interest rates were cut by 75 basis points at around the time of the long-term capital management crisis and the related Russian default, and they stayed low quite a while afterwards. Looking back, you could say that was, if not an overreaction, a reaction that lasted longer than it should have. It was around the same time as the bubble, but I wouldn't say it was a fault of not looking at bubbles.

I think that is a period that policymakers and researchers should look at carefully. Was that cut in interest rates the right thing? Did it let the boom go on too long? It's actually an example

where you could say there were deviations from a policy rule. The cut in interest rates was a discretionary move. So looking back at that episode is really important. It would also be important to look back at a similar episode after the 1987 crash when the Fed cut rates and at a third episode, in 2003, when the interest rate was held low for quite a while.

COMMUNICATION

Region: You have given countless speeches, hundreds of lectures, written several textbooks, developed online courses. You've even dressed up as a raisin, I understand, to teach economics to undergrads here at Stanford.

Taylor: [Laughter] Yes. Right. That's true.

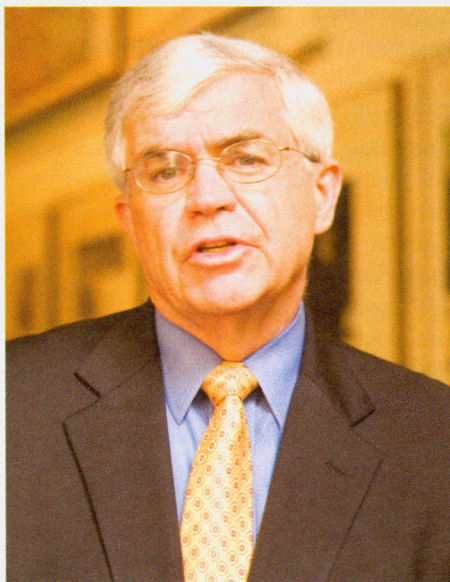
Region: In the last few years, you've been educating politicians about economic policy, and now you've returned to Stanford to teach—are you still teaching intro economics?

Taylor: This quarter I taught a course on international finance, closer to my recent job, for juniors and seniors who have already taken intro economics. But I'm sure I'll come back to teaching introductory economics at some point.

Region: Through all of these efforts, what have you learned about communicating economics to non-economists?

Taylor: There are very important principles that one can communicate that don't involve high-powered analysis, and you can communicate those principles in simple terms. You don't want to oversimplify, but my experience is that you can explain things to people if they're willing to learn and if you take the time to listen to their questions and see where more explanation is needed. I've never been reluctant to mix entertainment with teaching, if it helps students understand or remember, and that is where the raisin story comes from.

What I've always found fascinating



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about teaching, quite frankly, is how to communicate ideas that can be very complicated at a level that doesn't require a lot of prior training. You have to respect people's basic intelligence and their ability to analyze in different ways and, of course, be patient. Some people—Stanford students call them techies—are better at mathematics; others—Stanford students call them fuzzies—are better at history or philosophy. Understanding economics requires both, and it helps to explain this to students. That's what I have learned about communicating economics.

But in some sense, my job over the last four years was a little less about communicating the ideas, although that was important. It was really more about implementing ideas. An example: The Taylor rule is an idea. To implement that, central banks had to look at it and do various things. I didn't have much to do

with implementing that idea.

By contrast, my job in Washington in the Bush administration was mostly implementing ideas. Part of that is communicating, of course, because you want to explain the idea to people. But in addition, there's forming a coalition to support the idea. There's debating with people who have other ideas, and they're always there in a democracy. There are negotiations. Internationally, you've got coalitions of countries to think about, not just within our country. And then you've got to compromise.

I find all of that fascinating from the point of view of policymaking. But the idea and communicating the idea are just the first part of that whole series of steps you've got to go through to get something done. I'm very interested in the other steps now because I think many people don't realize what that's all about. It's a fascinating process and one which I think could be done better.

"STOLEN" JOBS

Region: The American public has been worried that jobs are being "stolen" by China and India, and perhaps other countries, and favored policy to stop that. How do you communicate to the public about that situation?

Taylor: It's one of the most difficult tasks because it's so easy to claim that a job was lost to foreign competition and so much more difficult to show that jobs are created as well. But the communication, as you say, about jobs, must be done well. You can point out, for example, that the unemployment rate has come down from 6 percent three years ago to 4.8 percent in this period of challenging international competition from China. So you can't find overall unemployment effects from trade.

Still, people can claim that "good" jobs are being lost, and therefore you have to look at the nature of the jobs. But to alleviate people's concerns, you have to show the gains that come from the trade. Part of it is in different kinds of

jobs. Part of it is lower-priced goods. Goods from China are much cheaper. The lower-priced toys and tennis shoes and clothing that people, generally low-income people, can buy are a great benefit to them. So it's a complicated story, but it's one that's really important to tell. You have to point out that America is a strong country. You say, "We have a lot of successes in technology, in creating jobs, and we should continue with that."

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There's one other thing that I think is important to stress and that is that there are ways to help people who are hurt by trade. There's job retraining. Or if it's unemployment, there's unemployment compensation. There's also the importance of better education, but that's longer term. So all those things are what I would stress. But it's very difficult. Communication about international trade has always been difficult.

More About John B. Taylor

Current Positions

Mary and Robert Raymond Professor of Economics at Stanford University since 1993; on the faculty since 1984

Bowen H. and Janice Arthur McCoy Senior Fellow of the Hoover Institution at Stanford University since 1996

Previous Academic Positions

Director of the Introductory Economics Center (1997–2001)

Director of the Stanford Institute for Economic Policy Research (SIEPR) (1994–97)

Professor of Economics and Public Affairs at Princeton University (1980–84)

Visiting Professor of Economics at Yale University (1980)

Professor of Economics (1979–80), Associate Professor of Economics (1977–79), Assistant Professor of Economics (1973–77) at Columbia University

Other Positions

California Governor's Council of Economic Advisers (2005–present, 1995–98)

Chair of the Working Party on International Macroeconomics for the Organization for Economic Cooperation and Development (2003–05)

Under Secretary for International Affairs for the U.S. Treasury (2001–05)

Advisory Panel for the Congressional Budget Office (1995–2001, 1983)

President's Council of Economic Advisers (1989–91); Senior Staff Economist (1976–77)

Research Adviser at the Federal Reserve Bank of Philadelphia (1981–84)

Economic Analyst at Townsend-Greenspan and Co., New York (1978–81)

Professional Activities

Managing Editor of the *International Journal of Central Banking* (2005–present)

Vice President of the American Economic Association (2000–01); served on the Executive Committee and other committees of the Association since 1989

Member of the Federal Economic Statistics Advisory Committee (2000–01)

Member of the Board of Trustees for the Foundation for Teaching Economics (1997–2001)

Co-editor for Macroeconomics and International Economics, *American Economic Review* (1985–88)

Awards and Honors

Fellow of the American Academy of Arts and Sciences since 1992

Fellow of the Econometric Society since 1985

Research Associate, National Bureau of Economic Research, since 1981

Alexander Hamilton Award for leadership in international finance, U.S. Treasury (2005)

George P. Shultz Public Service Award, Stanford University (2005)

Distinguished Service Award, U.S. Treasury, for design and implementation of financial reconstruction in Iraq (2004)

Medal of the Republic of Uruguay for work in resolving the financial crisis of 2002

Lilian and Thomas B. Rhodes Prize for outstanding contributions to the teaching of introductory economics at Stanford University (1996)

Laurence and Naomi Carpenter Hoagland Prize in recognition for excellence in undergraduate teaching at Stanford University (1991)

Wolf Balleisen Memorial Prize for best senior thesis in economics, Princeton University (1968)

Publications

Economics, 5th Edition, forthcoming in 2007

Inflation, Unemployment and Monetary Policy, with Robert Solow, 1998

Macroeconomics: Theory, Performance and Policy, with Robert E. Hall, 5th Edition, 1997

Macroeconomic Policy in a World Economy: From Econometric Design to Practical Operation, 1993

Dozens of articles on monetary policy, fiscal policy and international economics

Education

Doctorate in economics, Stanford University, 1973

Bachelor's degree in economics (*summa cum laude*), Princeton University, 1968

IRAQ

Region: Thinking about international work, some of the most arduous efforts you have undertaken were in Iraq, where you helped to reestablish the central bank. How do you go into countries where the financial infrastructure has been torn apart and begin to rebuild? And are you optimistic?

Taylor: Oh, yes, I'm optimistic about both Iraq and Afghanistan, where I also worked to rebuild financial systems. I think the progress made on the financial side in Iraq was unbelievable. It was amazing how successfully it all went. A whole new currency was put in place in just a matter of months. A new central bank was established; central banking law was developed. There was no financial chaos, which was really a major concern when the Saddam government fell. We prepared for months in advance.

So I think the way I would answer your question is just to be prepared and have some plans that you've worked out even though you don't know precisely what the circumstances will be. This is a management and leadership question. We had to have knowledgeable people on the ground who could talk to the career people in the central bank or the finance ministry after the government fell. Brave people, experienced people, they have to know to report back to Washington if there are changes in the plans. We set up what I called a "reach-back" operation in Washington to provide that capacity. You also have to have communication up through the chain of command in Washington. And you need the best experts you can find. Fortunately, we had Tom Simpson from the Fed Board staff come to Treasury to help us, and he just did a terrific job. Former Fed economist Bill Dewald spent several months in Baghdad under difficult conditions and made an enormous difference. So, good expertise is essential.

And good basic monetary theory

came into play. How much of the new currency are people going to demand? How much new currency needs to be printed? And how fast would it be printed? We had to print so much currency that it took 27 747 planeloads to fly it into Iraq. It was printed at seven locations around the world. And then it had to be shipped to 250 distribution points around the country.

Region: A huge helicopter drop of money.

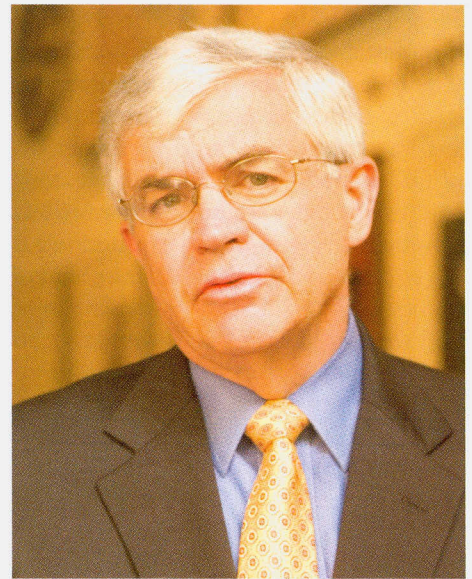
Taylor: It was indeed. It was much more than an economic issue. It was also a security issue and a logistical issue. You have to assemble all the things you need to run an organization, keep it running like clockwork, and even then things can go wrong. I was just so thankful that nothing went wrong in the currency exchange.

WASHINGTON

Region: Do you miss Washington? The high level of policy engagement and international travel? What are the benefits of being back in academe?

Taylor: Well, the benefit is being given a chance to think about things for more than five minutes. Being able to get back into, if you like, more in-depth thinking about policy. I didn't have time for that really. That's something I enjoy a lot about coming back from doing work in Washington.

This is not my first time coming back, of course. And each time I have renewed respect for thinkers and idea people because it is very difficult. You don't have all the external stimulus: What should we do today because of this event or that event? It's almost all internally generated. So researchers at think tanks, at research departments of the Fed or at universities have a difficult job, and to do it well is very hard. When I come back, I always think it's more difficult than going into government. Working in the world of ideas is a diffi-



Ideas are what we do at think tanks, research departments and universities. But the implementation of ideas is what you do when you're making policy. And I find that fascinating.

cult job to do well, but I've always enjoyed it.

In fact, my experiences in government have been useful for my research. The Taylor rule can be traced to such an experience. In the first Bush administration, part of my job was to liaise with the Fed, so it was in my mind that something like a systematic rule would be useful. And when I worked in the mid-'70s at the CEA [president's Council of Economic Advisers], I saw the usefulness of having some models of wage determination and staggered price setting. So government experience has always been useful for me in my research.

That's all the good part about coming back. But missing it? Yes. I enjoyed, if you like, running things. I enjoyed that. I enjoyed trying to figure out, "How do we solve this problem?" It goes back to what I said about ideas and implementation of ideas. Ideas are what we do at think tanks, research departments and universities. But the implementation of ideas is

what you do when you're making policy. And I find that fascinating. One of the things that I'd like to do now that I'm back is try to write about that part of the job, the implementation—it's partly management, partly forming coalitions, political compromise, et cetera. I miss that because it is both rewarding to contribute to public policy and intellectually challenging. The implementation is as much of an intellectual challenge as developing the ideas themselves.

Region: Thank you very much. **R**

—*Douglas Clement*
March 8, 2006